

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No.: 10/576,288

Attorney Docket No.: Q94481

AMENDMENTS TO THE DRAWINGS

Submitted herewith please find one (1) sheet of replacement drawings in compliance with 37 C.F.R. § 1.84. The Examiner is respectfully requested to acknowledge receipt of these drawings.

The submitted drawing is intended to replace the drawing previously submitted.

Attachment: Replacement Sheets: One (1)

REMARKS

Claims 1-23 presently are pending in the application.

Drawings

In view of the amendment to figure 1, Applicant requests the Examiner to withdraw the objection.

Claim objections

Claims 1, 16 and 22 are objected to because of the informalities listed by the Examiner in the Office Action. In view of the amendments to claims 1, 16 and 22, Applicant requests the Examiner to withdraw the objection.

Rejection of claims 1, 2, 8-14, 17-20 and 23 under § 102(e) as being anticipated by Bensaou

Claims 1, 2, 8-14, 17-20, and 23 are rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Bensaou et al. (US 6,747,976 B1) hereinafter “Bensaou”. Applicant submits the following in traversal.

Claim 1

Applicant submits that Bensaou does not anticipate claim 1 because each and every element as set forth in the claim is not found, either expressly or inherently in Bensaou. The Examiner maintains that Bensaou discloses a method of closed-loop capacity scheduling between a base station and a mobile station, wherein the method comprises, *inter alia*, computing, in the FCCs, uplink capacity requests for the respective flows based on the selected traffic class.

The Examiner alleges that service queues 61 (CBR) and 63 (UBR) correspond to the claimed QoS traffic classes. Based on the cited section of Bensaou (col. 8, lines 13-37) in the Office Action, the Applicant is lead to believe that the Examiner alleges a reservation request to correspond to the claimed uplink capacity requests. Applicant, however, disagrees with the Examiner for the following reasons.

First, Applicant notes that the reservation request merely requests the number and the location of time slots and not an uplink capacity (col. 8, lines 31-37). In response to the reservation request by the Wireless terminal (WT), the Access point (AP) replies in the following frame with the number and location of times slots that the WT is allowed to use in a subsequent frame (col. 8, lines 31-37). Since the received number and location of time slots does not correspond to an uplink capacity, Applicant submits that the reservation request does not correspond to the claimed uplink capacity request.

Second, Bensaou discloses that the virtual up-link queues 61, 63 and 67 in the AP (which the Examiner alleges as corresponding to the claimed Base station) are represented either by the most recently received corresponding queue length or by a predicted number of cell arrivals for the CBR service (col. 12, lines 5-11). Applicant notes that Bensaou discloses that the corresponding queue lengths of the virtual up-link queues 61, 63 and 67 in the AP are used to reserve bandwidth (col. 12, lines 5-11). Therefore, Applicant submits that the bandwidth reservation requests for the up-link queues 61, 63 and 67 are computed in the AP (which the Examiner alleges as corresponding to the claimed Base station) using the queue lengths of the virtual up-link queues 61, 63 and 67 and not in the WT (which the Examiner alleges as corresponding to the claimed Mobile station). On the other hand, since claim 1 recites, *inter alia*,

computing, in the FCCs (in the mobile station), uplink capacity request for the respective flows based on the selected traffic class, Applicant submits that Bensaou does not anticipate claim 1.

Third, the Examiner alleges that the GCRA corresponds to the claimed capacity controllers (FCC). The GCRA algorithm merely measures a cell rate at a specified time scale. On the other hand, Applicant submits that an uplink capacity request is computed in the FCCs. Since the GCRA algorithm does not compute an uplink capacity request, Applicant submits that assigning, by mobile WT, individual queues to GCRA does not correspond to the claimed inputting respective flows to capacity controllers.

For at least the reasons submitted above, Applicant respectfully submits that claim 1 is patentable.

Claims 2-7, which depends from claim 1, are patentable at least by virtue of their dependencies.

Claim 8

Applicant submits that claim 8 is patentable. The Examiner asserts that Bensaou in Fig 6 and col. 8, lines 1-22 discloses receiving bandwidth at WT-subsystem and assigning allocated bandwidth based on priority. Applicant notes that no such disclosure is presented in Fig 6 and col. 8, lines 1-22 of Bensaou. Applicant requests the Examiner to specifically point out in col. 8, lines 1-22 and Fig 6, what the Examiner regards as disclosing receiving bandwidth allocation at WT-subsystem and assigning allocated bandwidth based on priority.

Bensaou discloses that the virtual up-link queues 61, 63 and 67 in the AP (which the Examiner alleges as corresponding to the claimed Base station) are represented either by the most recently received corresponding queue length or by a predicted number of cell arrivals for

the CBR service (col. 12, lines 5-11). Applicant notes that Bensaou discloses that the corresponding queue lengths of the virtual up-link queues 61, 63 and 67 in the AP are used to reserve bandwidths (col. 12, lines 5-11). Since the bandwidth is reserved in the AP based on the queue length of the virtual up-link queues 61, 63 and 67, Applicant submits that Bensaou fails to disclose or suggest determining, in the base station, a capacity allocation of the flow based on the capacity request. Therefore, in Bensaou, a corresponding queue length of the reservation based services is used to reserve bandwidth and not a capacity request from the WT.

In addition, the Examiner maintains that Bensaou discloses a method of closed-loop capacity scheduling between a base station and a mobile station, wherein, *inter alia*, reporting, in the base station, a flow assigning information and the capacity allocation information to the mobile station, and transmitting, in the mobile station, data packets based on the assigned flow and the capacity allocation. Applicant, however, respectfully disagrees.

Applicant notes that although the AP allocates time slots to the wireless terminals, in Bensaou, the wireless terminals are allowed to freely distribute the allocated time slots among their connections (col. 3, lines 26-31). Since the wireless terminals determine the use of the time slots, Applicant submits that Bensaou fails to disclose or suggest transmitting, in the mobile station, data packets based on the assigned flow.

For at least the reasons submitted above, Applicant respectfully submits that claim 8 is patentable.

Claims 9 and 10, which depend from claim 8, are patentable at least by virtue of their dependencies.

Claim 11

Applicant submits that claim 11 is patentable. Specifically, Applicant submits that Bensaou fails to disclose or suggest a method of closed-loop capacity scheduling, wherein the method comprises, *inter alia*, a first step where the mobile station reports to the base station of the provisional scheduling information generated based on the buffer storing amount of the data flow and the priority.

The Examiner maintains that Bensaou discloses WT-subsystem having CBR and UBR queues generates a request for bandwidth allocation to AP based on the stored data in queue buffer according to the priority. As submitted in the response to the rejection of claim 1, Applicant submits that the reservation request of Bensaou merely requests the number and the location of time slots and not a request for bandwidth allocation. The number and the location of time slots merely refers to the allocation of time slots in which the WT is allowed to use in a subsequent frame (col. 8, lines 35-37) and not to a bandwidth allocation.

In addition, although Bensaou discloses a dedicated service queue assigned to each service (CBR and UBR) in which schedules are constructed independently of the scheduling of the AP, Applicant notes Bensaou fails to disclose or suggest that the schedules constructed in the WT is reported to the AP. Instead, Bensaou discloses the process of sending the number of cells waiting in each of the service queues from the WT to the AP (col. 8, lines 30-32) and not the schedule information constructed in the WT.

Furthermore, as submitted in the response to the rejection of claim 8, Applicant submits that Bensaou fails to disclose or suggest a method of closed-loop capacity, wherein the method comprises, *inter alia*, a fourth step where the mobile station transmits the data flow based on the

capacity allocation and the data flow assigning information. Applicant notes that although the AP allocates time slots to the wireless terminals, in Bensaou, the wireless terminals are allowed to freely distribute the allocated time slots among their connections (col. 3, lines 26-31). Since the wireless terminals determine the use of the time slots, Applicant submits that Bensaou fails to disclose or suggest a fourth step where the mobile station transmits the data flow based on the data flow assigning information.

For at least the reasons submitted above, Applicant respectfully submits that claim 11 is patentable.

Claims 12 and 13, which depend from claim 11, are patentable at least by virtue of their dependencies.

Claim 12

In addition to being patentable by virtue of its dependency on claim 11, Applicant submits that claim 12 is patentable at least based on its merits. Applicant again notes that the Examiner uses time slots and bandwidth interchangeably. It is the Applicant's understanding that a time slot refers to the time duration in which data is sent from a Wireless terminal to the Access point. On the other hand, a bandwidth refers to the amount of data per unit time sent from the Wireless terminal to the Access point. Therefore, as submitted in the response to the rejection of claims 1 and 11, Applicant submits that the time slots do not correspond to the claimed capacity.

For at least the reasons submitted above, Applicant respectfully submits that claim 12 is patentable.

Claim 14

Applicant submits that claim 14 is patentable. Specifically, Applicant submits that Bensaou fails to disclose or suggest a system for providing closed-loop capacity scheduling between a mobile station and a base station, capable of selecting a QoS traffic class from a plurality of QoS traffic classes, the system comprising, *inter alia*, a flow capacity controller (FCC) for computing a requested uplink capacity for each data flow specified by a selected QoS traffic class in the mobile station for reasons similar to those submitted for claim 1.

In addition, the Examiner maintains that Bensaou discloses a system for providing closed-loop capacity scheduling, the system comprising, *inter alia*, a capacity request controller (CRC) for changing the requested uplink capacity so as to generate a changed capacity request indicating a changed capacity; and means for transmitting the changed capacity request from the mobile station to the base station. Specifically, the Examiner submits that Bensaou discloses process of WT-subsystem changing bandwidth as allocated by APs. First, Applicant notes that claim 14 recites changing the requested uplink capacity and not the uplink capacity.

The Applicant believes that the Examiner alleges that the time slots correspond to the claimed uplink capacity. The Examiner also alleges that the reservation request corresponds to the claimed uplink capacity request. As submitted in response to the rejection of claims 1, 11 and 12, Applicant notes that the Examiner uses the allocated number of time slots interchangeably with the allocated bandwidth. It is the Applicant's understanding that a time slot refers to the time duration in which data is sent from a Wireless terminal to the Access point. On the other hand, a bandwidth refers to the amount of data per unit time sent from the Wireless

terminal to the Access point. Therefore, as submitted in the response to the rejection of claims 1 and 11, Applicant submits that the time slots do not correspond to the claimed capacity.

Second, even if assuming *arguendo* that the reservation request corresponds to the claimed uplink capacity, Applicant submits that Bensaou fails to disclose or suggest a capacity request controller (CRC) for changing the reservation request and transmitting the changed reservation request from the Wireless terminal to the Access point.

For at least the reasons submitted above, Applicant respectfully submits that claim 14 is patentable.

For reasons similar to those submitted for claim 14, Applicant respectfully submits that claim 20 is patentable.

Claims 15-17, which depend from claim 14, are patentable at least by virtue of their dependencies.

Claims 21 and 22, which depend from claim 20, are patentable at least by virtue of their dependencies.

Claim 18

Applicants submit that Bensaou does not anticipate claim 18 because each and every element as set forth in the claim is not found, either expressly or inherently in Bensaou. First, Applicant submits that Bensaou fails to disclose or suggest an uplink capacity managing method, the base station comprising the steps of, *inter alia*, receiving a capacity request transmitted from the mobile station for reasons similar to those submitted for claims 1 and 8.

Second, the Examiner maintains that col. 2, lines 26-29 discloses an uplink capacity managing method, the base station comprising the steps of, *inter alia*, computing a minimum

QoS capacity that satisfies a minimum Qos request. Applicant respectfully disagrees. Applicant notes that col. 2, lines 26-29 discloses that the ABR (available bit-rate) is characterized by its minimum cell rate. In addition, col. 4, line 64 - col. 5, line 1 discloses that the non real time group including ABR requires the slave scheduler to report the cell rate to the master scheduler. Since the cell rate that characterizes the ABR is reported by the WT to the AP, Applicant submits that Bensaou fails to disclose or suggest the base station comprising the steps of, inter alia, computing a minimum QoS capacity that satisfies a minimum QoS request.

For at least the reasons submitted above, Applicant respectfully submits that claim 18 is patentable.

Claim 19, which depends from claim 18, is patentable at least by virtue of its dependency.

Claim 23

For reasons similar to those submitted for claim 14, Applicant submits that Bensaou fails to disclose or suggest a base station device for carrying out an uplink capacity control for a plurality of mobile stations, comprising, *inter alia*, a receiving means for receiving the changed capacity request.

For at least the reasons submitted above, Applicant respectfully submits that claim 23 is patentable.

Rejection of claims 3-6, 15, 17 and 21 under § 103(a) over Bensaou in view of

DeClerck

Claims 3-6, 15, 17 and 21 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Bensaou, and further in view of DeClerck et al. (US Patent No. 6,198,937 B1) hereinafter “DeClerck”.

Claim 15

In addition to being patentable by virtue of its dependency on claim 14, Applicant submits that claim 15 is patentable at least based on its merits. The Examiner concedes that Bensaou fails to disclose a capacity allocation controller (CAC) changing the allocated capacity transmitted from the base station based on an uplink transmission power, however, cites DeClerck to make up for the deficiency. The Examiner maintains that DeClerck disclose a capacity allocation controller (CAC) changing the allocated capacity transmitted from the base station based on an uplink transmission power and that it would be obvious to one of ordinary skill in the art to combine the teachings of Bensaou and DeClerck for the purposes of providing compatibility between multiple transmission technologies. Applicant, however, respectfully disagrees.

The Examiner cites col. 2, lines 40-45 of DeClerck as disclosing the claimed capacity allocation controller. Col. 2, lines 40-45 discloses dual mode mobile stations that operate by using the available radio link capacities of the older and new type transmission technologies. For example, if a dual mode mobile station exhausts a radio link capacity of the older type transmission technology, the problem is solved by simply handing off the some of the dual mode mobile stations from the old to the new transmission technology (col. 2, lines 40-45). Therefore, DeClerck discloses the use of a new base station when the radio link capacity of the old base station gets saturated. In other words, an allocated capacity to a dual mobile station is changed by using a different type base station technology. On the contrary, claim 15 recites, wherein the mobile station further comprises, inter alia, a capacity allocation controller changing the

allocated capacity transmitted from the base station. In conclusion, DeClerck uses different base station technologies to change the radio link capacity, whereas claim 15 recites a mobile station changing the allocated capacity.

Since DeClerck fails to disclose or suggest wherein the mobile station comprises, *inter alia*, a capacity allocation controller (CAC) changing the allocated capacity, one of ordinary skill in the art would have no motivation to combine the teachings of Bensaou and DeClerck to disclose a mobile station comprising, a capacity allocation controller (CAC) changing the allocated capacity transmitted from the base station based on an uplink transmission power.

For at least the reasons submitted above, Applicant respectfully submits that claim 15 is patentable.

For reasons similar to those submitted for claim 15, Applicant respectfully submits that claim 21 is patentable.

DeClerck does not cure the deficiencies of Bensaou. Accordingly, Applicant submits that claims 3-6, 15, 17 and 21 are patentable at least by virtue of their dependencies on claims 1, 14 or 20.

Rejection of claim 16 under § 103(a) over Bensaou in view of 3GPP TR 25.896

Claim 16 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Bensaou as applied to claims above, and further in view of 3GPP TR 25.896 V1.0.0 (2003-09) herein after referred as 3GPP TR 25.896 V1.0.0.

3GPP TR 25.896 V1.0.0 (2003-09) does not cure the deficiencies of Bensaou.

Accordingly, Applicant respectfully submits that claim 16 is patentable at least by virtue of its dependency on claim 14.

Rejection of claims 7 and 22 under § 103(a) over Bensaou in view of DeClerck and further in view of 3GPP TR 25.896

Claims 7 and 22 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Bensaou in view of DeClerck as applied to claims above, and further in view of 3GPP TR 25.896 V1.0.0.

3GPP TR 25.896 V1.0.0 (2003-09) does not cure the deficiencies of Bensaou in view of DeClerck. Accordingly, Applicant respectfully submits that claims 7 and 22 are patentable at least by virtue of their dependencies on claims 1 and 20, respectively.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,


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